

Elementary Statistical Methods

Exam Two Review

1. Suppose X is a random variable with probability mass function

x	1	2	4	9	12
$p(x)$	0.1	0.2	0.3	0.15	0.25

Calculate the following.

- (a) $P(X = 4)$
 - (b) $P(2 < X \leq 9)$
 - (c) $P(X \geq 7)$
 - (d) $E(X)$
 - (e) The variance and standard deviation of X
 - (f) Is X discrete or continuous?
2. In a certain town, 20% of the residents are experiencing flu-like symptoms. In a random sample of 50 residents of this town, find the probability that
- (a) Exactly 12 have flu-like symptoms.
 - (b) at most 15 have flu-like symptoms.
 - (c) at least 7 have flu-like symptoms.
 - (d) between 5 and 18 have flu-like symptoms (inclusive).
 - (e) If X is the number of people in the sample with flu-like symptoms, find the expected value, variance, and standard deviation of X .
3. Suppose Z is a standard normal random variable. Find the following.
- (a) $P(-1.28 < Z < 2.86)$
 - (b) $P(1.45 < Z)$
4. Suppose blood glucose levels in a certain population are normally distributed with mean 118 mg/100 mL and standard deviation 46 mg/100 mL. Find the following.
- (a) The percentage of the population with blood glucose levels between 85 mg/100 mL and 137 mg/100 mL.
 - (b) The percentage of the population with blood glucose levels over 144 mg/100 mL.